

# **Description of Rules**

## **Appendix A**

This appendix contains a description of each rule that results in a finding by the CICS Component of CPEXpert. The description summarizes the rule, lists predecessor rules, discusses the rationale for the finding, and suggests action.

The summary of the rule presents a short description of the finding.

If appropriate, predecessor rules are listed so you can follow the line of reasoning leading to a particular rule being executed.

The discussion describes as much as necessary of the operation of CICS and its interaction with the computer system (the hardware, MVS, the SRM, etc.) as it relates to the particular rule. The purpose of the discussion is to explain the reasoning behind the rule, and what causes the rule to be produced. Additionally, the discussion generally explains how CPEXpert determines whether the rule is appropriate to potentially improving the performance of the CICS region being analyzed.

The recommendations suggest possible actions that should be considered based on the findings. In many cases, multiple possible actions are listed. You must determine which actions should be taken (this determination is based upon the suitability of the actions to your own environment, the financial implications of the action, and the "political" acceptability of the action.)

The rules are organized in numerical order. However, not all numbers are represented. The LIST OF RULES in this appendix lists all rules that are included in the initial release of the CICS Component.

You may wish to read all of the rules in this appendix, just to see the type of problems that are encountered in different installations. However, it is not necessary to read all of the rules. It is necessary only to read the rules that apply to your installation. The rules that apply to your installation are identified by the report produced from the CICCPE Module.

Beginning with CICS/ESA Version 4.1, the references to IBM documents **apply to IBM BookManager documents**. The IBM BookManager documents are contained in IBM CDROM LK2T-5114 or in IBM CDROM SK2T-0710 (with appropriate quarterly updates). With OS/390, the IBM BookManager documents are contained in IBM CDROM SK2T-6700.

If any user does not have access to IBM BookManager documents, please call Computer Management Sciences. We will be happy to provide references to hardcopy manuals.

Beginning with CICS/Transaction Server for z/OS, CICS documentation is contained in the CICS Information Center (InfoCenter). IBM provides the following description of the documentation available with CICS/Transaction Server for z/OS:

"For CICS Transaction Server V2.1 (announced March 2001), there has been a move away from printed books as the default deliverable to a new online concept. The primary source of user information for this release is a new CICS Information Center with a graphical user interface, delivered with the product on a CD-ROM. This HTML-based Information Center runs inside a Web browser, and provides a number of alternative means of accessing the information within it.

The objective of the Information Center is to make it easy for users to retrieve the information they need to perform specific CICS tasks, or to find relevant background or reference information on demand. At the heart of the Information Center is an HTML representation of the total CICS library (unlicensed books). Within the graphical user interface, the key documentation can be accessed via three main classes: tasks, concepts, and reference, each separately selectable. On selecting a class, the categories for that class are displayed in the navigation panel. Each of these can be expanded into a hierarchical navigation tree of topics in turn point to the detailed information.

The Information Center also includes a powerful search capability based on IBM's NetQuestion technology. Search results can be saved for future reference. In addition to the new methods of accessing the CICS documentation, the Information Center provides the more traditional alternative of a complete library listing of the books, which can be viewed in both HTML and PDF formats. The latter also provides the capability to print either the whole book or some of the pages in hardcopy a printer, using Adobe Acrobat.

For this new release of CICS, the main focus of the documentation is the implementation of EJB technology in the CICS environment. A new piece of documentation entitled "Java Applications in CICS" is the cornerstone of this information, and has been designed to make use of the new capabilities of the Information Center."

CPExpert references for CICS/Transaction Server for z/OS are specific to the CICS Information Center.

## List of Rules

<b><u>RULE</u></b>	<b><u>DESCRIPTION</u></b>
CIC101	The CICS region reached maximum tasks too often
CIC102	The AMAX value may be too low
CIC103	Class maximum was reached too often
CIC104	Maximum Task (MXT) specification may be too large
CIC105	Transaction class reached MAXACTIVE too often
CIC106	Too many tasks were queued for MAXACTIVE reason
CIC107	PURGETHRESH value should be increased
CIC108	Maximum Task (MXT) specification may be too small
CIC109	CICS region is approaching maximum capacity
CIC110	CICS encountered a Short-on-Storage condition
CIC112	The number of GETMAINS may be too high
CIC113	Peak EDSA usage is approaching EDSALIM value
CIC120	A storage violation occurred in a production CICS region
CIC121	Transactions experiencing storage violations
CIC130	Storage dumps occurred in a production CICS region
CIC140	The number of transaction errors is high
CIC141	Transactions experienced a stall-purge

<b><u>RULE</u></b>	<b><u>DESCRIPTION</u></b>
CIC150	VTAM reached the maximum RAPOOL value too often
CIC151	The RAPOOL value may be too large
CIC152	The VTAM short on storage count is increasing
CIC155	The number of concurrent Autoinstall attempts is high
CIC156	The DSHIPINT value might be too large
CIC160	The number of strings may be too low for VSAM NSR file
CIC161	The number of strings is too low for VSAM LSR pool
CIC162	The number of strings may be too high for VSAM LSR pool
CIC163	The number of buffers is too low for VSAM LSR pool
CIC164	The number of buffers may be too high for VSAM LSR pool
CIC165	The "look-aside" read hit ratio was low for VSAM LSR pool
CIC166	VSAM LSR files have same CI size for data and index records
CIC167	Too few VSAM files are assigned to LSR pools
CIC168	LSR buffer sizes may be inappropriate
CIC169	The number of buffers may be too low for VSAM LSR pool
CIC170	More than one string specified for write-only ESDS file
CIC171	Significant percent of write activity for ESDS file
CIC175	VSAM LSR pool was seldom used
CIC176	VSAM LSR subpool was seldom used
CIC177	Large percent UPDATE option used without WRITE or DELETE

<b><u>RULE</u></b>	<b><u>DESCRIPTION</u></b>
CIC184	Size of the temporary storage data set may be too small
CIC185	The number of Temporary Storage buffers may be too high
CIC186	The number of Temporary Storage buffers may be too low
CIC187	The number of Temporary Storage strings may be too high
CIC188	The number of Temporary Storage strings may be too low
CIC190	The number of DL/I Threads may be too low
CIC191	The DLTHRED specification may be too high
CIC192	The DMBPL specification may be too low
CIC193	The ENQPL specification may be too low
CIC194	The PSBPL specification may be too low
CIC210	The number of Transient Data buffers may be too low
CIC211	The number of Transient Data strings may be too low
CIC220	The CICS journal buffer size is too small (system log)
CIC221	The CICS journal buffer size may be too small (user log)
CIC222	The CICS journal buffer size may be too small (shift-ups)
CIC230	The CICS Dynamic Transaction Backout buffer size may be too small

<b><u>RULE</u></b>	<b><u>DESCRIPTION</u></b>
CIC250	The ICV value may be inappropriate
CIC251	Default value was specified for the MROBTCH parameter
CIC252	The MROBTCH value may be too large
CIC253	Default value was specified for the MROLRM parameter
CIC254	ISRDELAY value may be too low
CIC255	PVDELAY value may be too low
CIC256	CICS Monitoring Facility (Performance Class) was turned on
CIC257	CICS Auxiliary Trace was turned on
CIC258	CICS Internal Trace Table might be too small
CIC259	SUBTSKS=1 was specified in System Initialization Table
CIC260	Insufficient sessions may have been defined
CIC261	APPC modegroup may have insufficient sessions defined
CIC262	Conflicting usage between APPC modegroups may exist
CIC263	Balance between contention winners and contention losers may be inappropriate
CIC264	Balance between contention winners and contention losers may be inappropriate for APPC modegroup
CIC265	Connection problems caused generic ALLOCATE requests to fail
CIC266	Connection problems caused specific ALLOCATE requests to fail
CIC267	Insufficient sessions may have been defined
CIC275	CICS-DB2 peak TCBs is approaching TCBLIMIT
CIC276	High number of CICS-DB2 peak tasks on Pool Ready Queue
CIC277	CICS-DB2 pool threads in use is approaching limit

<b><u>RULE</u></b>	<b><u>DESCRIPTION</u></b>
CIC301	CICS waited for logger “structure full” condition
CIC302	CICS waited for logger “staging data set full” condition
CIC303	Log stream structure offloads occurred: 90% full
CIC304	Interim storage was not efficiently used for log stream
CIC305	Local storage buffers not efficiently used, DASD-only log stream
CIC306	DASD staging data set high threshold was reached
CIC307	Frequent log stream DASD-shifts occurred
CIC308	Log stream caused structure to reach high threshold
CIC309	Log stream consumed most of structure resources
CIC320	High percent of structure entries were in use
CIC321	High percent of structure elements were in use
CIC322	High percent structure requests timed out by coupling facility
CIC323	High percent entries (queue or item) not found
CIC324	Maximum list key was reached
CIC325	The list structure was out of space
CIC326	High percent of list data reads had to be repeated
CIC327	High percent of structure index data reads had to be repeated
CIC328	High percent version check failed for an entry being updated
CIC330	High percent shared TS queue index buffers were in use
CIC331	High percent LRU activity in the TS queue index buffer pool
CIC332	Excess buffers defined for queue index buffer pool
CIC333	High percent waits on shared temporary storage buffer pool lock



<b><u>RULE</u></b>	<b><u>DESCRIPTION</u></b>
CIC334	High percent GET wait on shared temporary storage buffer lock
CIC340	LOC=ANY storage request initially failed and was retried
CIC341	LOC=ANY storage request was unable to obtain requested storage after retry
CIC342	LOC=ANY low percent minimum free storage
CIC343	LOC=BELOW storage request initially failed and was retried
CIC344	LOC=BELOW storage request was unable to obtain requested storage after retry
CIC345	LOC=BELOW low percent minimum free storage

<b><u>RULE</u></b>	<b><u>DESCRIPTION</u></b>
CIC401	Adds were rejected because shared data table was full
CIC402	Records not found in CICS-maintained shared data table
CIC403	Records not found in user-maintained shared data table
CIC405	High data set activity for CICS-maintained shared data table
CIC406	VSAM data set might not be good candidate for shared data table
CIC420	High percent of structure entries were in use
CIC421	High percent of structure elements were in use
CIC422	High percent structure requests encountered length error
CIC423	High percent entries (CFDT or item) not found
CIC424	List full condition was reached for CFDT
CIC425	The CFDT list structure was out of space
CIC426	High percent version check failed for an entry being updated
CIC440	LOC=ANY storage request initially failed and was retried
CIC441	LOC=ANY requests were unable to obtain storage and failed
CIC442	LOC=ANY low percent minimum free storage
CIC443	LOC=BELOW storage request initially failed and was retried
CIC444	LOC=BELOW requests were unable to obtain storage and failed
CIC445	LOC=BELOW low percent minimum free storage
CIC446	CFDT pool server storage allocation was less than expected